



Ahimsā

Newsletter of the Charleston Buddhist Fellowship

December 2013 (2557)

Buddhism and Science

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Buddhist writers have often remarked that Buddhism is the one religion which has no quarrel with science and that the Buddha anticipated some of our modern scientific theories by nearly 2,500 years. While this is largely true, there are nevertheless several aspects of Buddhist teachings which contemporary science either does not recognize or completely rejects. For convenience of discussion, I should like to divide arbitrarily the relationship of Buddhism to science into five categories: (1) Areas of complete agreement; (2) Buddhist concepts not recognized by science; (3) Buddhist teachings similar but not identical to those of science; (4) The Buddhist view of the mind; and (5) Buddhist doctrines rejected by science.

As with the rest of this writing, our discussion of Buddhism shall be confined to Theravādin Buddhism, which is the earliest form and is based upon the Pāli scriptures. With the possible exception of Zen and a few other sects, the Mahāyāna, or Sanskrit schools of Buddhism, bear less similarity to scientific teachings than does Theravāda. In the Mahāyāna scriptures, one finds examples of deification of the Buddha; a doctrine of salvation through faith which leads to rebirth in the Western Heaven (Sukhāvatī); and an emphasis upon magic, miracles, and supernormal beings which exceeds anything of a similar nature in the Pāli scriptures. Moreover, the Mahāyāna emphasis upon devotion, rites and rituals, esoteric teachings (such as tantra), metaphysics, and mysticism, are virtually unknown in both science and the Pāli Canon. These features are not characteristic of all Mahāyāna schools, however, and the division of Mahāyāna Buddhism into numerous and varied sects prohibits a thorough analysis in this short essay of its relationship to science.

The Agreements between Buddhism and Science

It is in the areas of ideals and general principles, rather than specific beliefs, that Buddhism and science bear their greatest similarities. Both advocate free and rational inquiry, empirical verification, and freedom from authoritarian dogma. Both view the universe as regulated by impersonal laws of cause and effect operating throughout eons of time. Both see man as a product of the universe rather than a special creation.

Impermanence and Cause and Effect

One of the basic tenets of Buddhist doctrine is the three fundamental characteristics of existence. The first of these is *anicca* or impermanence, which states that all things in the universe are subject to change. No finite creation can exist forever, whether it be man or animal, city or society, mountain or solar system. Throughout the

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Activities

The Charleston Buddhist Fellowship:

- Conducts informal seminars on Buddhism.
- Prepares and distributes free educational material.

Programs

The Charleston Buddhist Fellowship sponsors the following programs:

- Instructions in meditation.
- *Dhamma* study groups.
- Retreats (at IMC-USA).

There are no fees for any of the activities or programs offered by the organization. Seminars are designed to present basic information about Buddhism to the general public — anyone may attend. However, study groups and meditation instructions are open to members only.

Retreats last ten days and are coordinated through IMC-USA in Westminster, MD (410-346-7889). Fees are set by IMC-USA. Advance registration is required.

One-on-one discussions about one's individual practice or about Buddhism in general are also available upon request. These discussions are accorded confidential treatment. There is no fee for one-on-one discussions. ■

Purpose of the Charleston Buddhist Fellowship

The Charleston Buddhist Fellowship is an educational organization whose purpose is to preserve and promote the original teachings of the Buddha in the West.

The Charleston Buddhist Fellowship actively encourages an ever-deepening process of commitment among Westerners to live a Buddhist way of life in accordance with the original Teachings of the Buddha.

The Charleston Buddhist Fellowship provides free educational material to those who want to learn about Buddhism and about how to put the Teachings of the Buddha into practice.

The goals of the Charleston Buddhist Fellowship are:

1. To provide systematic instruction in the *Dhamma*, based primarily on Pāli sources.
2. To promote practice of the *Dhamma* in daily life.
3. To provide guidance on matters relating to the *Dhamma*, its study, and its practice.
4. To encourage the study of the Pāli language and literature.
5. To maintain close contact with individuals and groups interested in promoting and supporting the foregoing goals. ■

Dhamma Study Groups

The current Sunday morning meeting schedule is as follows:

- 9:00 AM: Basic/Introductory study group focusing on *The Essential Teachings of Buddhism*.
- 10:00 AM: Meditation sitting.
- 11:00 AM: Intermediate study group focusing on *Just Seeing* by Cynthia Thatcher.

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Pāli Canon is the Buddha's oft-repeated stanza:

"All compounded things indeed are subject to arising and passing away; what is born comes to an end."

This process of change, however, does not occur capriciously, but rather is universally regulated by impersonal laws of cause and effect. It is only the laws of change which do not change. Thus, another essential tenet of Buddhist doctrine is *paṭicca samuppāda*, or dependent origination, which states that each existing condition is determined by the conditions which preceded it.

The Infinity of Time

There is in Buddhist teaching no beginning and no end of the universe. The above-mentioned laws of cause and effect have been operating back into the infinite past and will continue to operate into the infinite future.

Man is not a Special Creation

In the Buddhist view, man is a product of an impersonal universe. The universe was not created for man, nor is man necessarily the highest form of intelligence. Nor does Buddhism recognize any essential difference between man and the lower animals; the difference is qualitative rather than absolute.

Free and Rational Inquiry

Perhaps the greatest appeal that Buddhism has to the scientific mentality is its insistence upon rational inquiry and critical examination, as opposed to blind faith and devotion. In the *Aṭṭhakavagga* of the *Sutta Nipāta*, the Buddha is quoted as saying:

"It is certainly hard to change one's set opinions, but a man should let himself freely test all philosophical systems, adopting and rejecting them as he sees fit."

On another occasion, when asked how to

determine a true doctrine, He replied:

"Do not go upon what has been acquired by repeated hearing; nor upon tradition; nor upon rumor; nor upon what is in a scripture; nor upon surmise; nor upon an axiom; nor upon specious reasoning; nor upon a bias towards a notion that has been pondered over; nor upon another's seeming ability; nor upon the consideration, 'The Monk is our teacher'."

Even His own doctrine was not excluded from critical investigation.

The Buddhist criteria for determining objective truth are twofold.

First, a belief must be consistent within itself, that is, free from contradictions. But it is possible to have a doctrine consistent within itself and yet not corresponding to fact. Thus, the Buddha said that convictions should not be founded on pure reasoning alone lest they vary from reality.

This brings us to the second criterion which is that a belief must be demonstrable within the light of one's experience, that is, it must be capable of empirical verification.

For example, many Brahmins religiously and metaphysically contended that God had established the caste system, and thus it was divinely willed that men should be divided into four distinct castes. The Buddha rejected such contentions. And again, when the Brahmins asserted that they were a divine race born from the mouth of God, the Buddha again rejected their assertions.

With regard to these scientific features of the Dhamma, one of the most renowned scientists of all time, Dr. Albert Einstein, made the following statements:

"The religion of the future will be a cosmic religion. It should transcend a personal God and avoid dogmas and theology. Covering both the natural and the spiritual, it should be based on a religious sense arising from the experience of all things, natural and spiritual, as a meaningful unity. Buddhism answers this description."

"If there is any religion that would cope with modern scientific needs, it would be Buddhism."

Buddhist Concepts not Recognized by Science

The existence of the transcendent realm of *Nibbāna* and the concept of the impersonal law of moral or psychological cause and effect called *kamma* (*kamma-vipāka*) are two important Buddhist doctrines which do not occur in modern scientific theories. In no way do these two concepts challenge our present scientific theories or contradict recorded facts. *Nibbāna*, by its very definition, is beyond the realm of scientific inquiry, and *kamma* is a postulated law of nature which, as yet, has not been verified by scientific studies. Therefore, from the scientist's viewpoint, both concepts are purely hypothetical and lack scientific support.

However, it should not be assumed that, because they are scientifically unverifiable, the doctrines of *Nibbāna* and *kamma* contradict the Buddhist ideal of empirical verification. The Buddhist disciplines of psychological development are alleged to result in an expansion of one's mental faculties to such a degree that knowledge can be acquired by extrasensory means. And it was on this basis that the Buddha claimed to know of *kamma* and *Nibbāna*.

Teachings Similar but not Identical

Not only did the Buddha refrain from discussing metaphysical problems which defied empirical verification, He also advised His disciples to avoid preoccupation with questions about the origins and structure of the universe; for these matters, too, are irrelevant to the immediate problems of impermanence, suffering, selflessness, and psychological maturation. However, in a few sections of the Pāli Canon, He saw fit to mention matters of scientific concern, and from these, we can gain some knowledge of His views of the universe. Usually, these passages were intended to illustrate a point of moral or psychological significance rather than to appease curiosity. For example, one of His descriptions of the end of the world was given to emphasize that all things, including the earth itself, are impermanent and will perish.

Cosmology

According to astronomers, our solar system is only one of approximately 100 billion solar systems or stars which are grouped into a great disk-shaped arrangement known as a galaxy. At least 100 million other galaxies, and perhaps as many as a billion, occur within the range of our largest telescopes. Each galaxy contains from several million to over two trillion stars. Within most galaxies, stars are not distributed in random order, but rather many are arranged into clusters. Our own galaxy has more than 100 such intra-galactic clusters, and each cluster has from a few thousand to a million stars. Not only are stars arranged into intra-galactic clusters and these clusters into galaxies, most galaxies, themselves, are arranged into clusters. Our galaxy is one of a cluster of at least 18 others, and some clusters of galaxies (such as the Virgo cloud and the Coma cluster) contain upwards of 1,000 visible galaxies.

The Buddhist view is remarkably similar. According to the Buddha, our solar system is not unique. Countless other solar systems such as our own exist throughout the universe.

In addition, the Buddha did not visualize a static universe. He taught instead that solar systems continually deteriorate and die out, while new ones are in the process of evolving. This view, also, is in accordance with modern science.

The Destruction of the Earth

Having unlocked the mysteries of solar energy and noting the stages of stellar evolution, astronomers have thus predicted the manner in which the world will end. They say that most likely the sun slowly but steadily will increase in brightness for a period of about five billion years, at which time the temperature of the earth will be near the boiling point of water. Following this, the increase in brightness will develop at a much faster rate. The sun will then expand to some 200 or 300 times its present size, which will be sufficient to engulf the planets Mercury and Venus and possibly the Earth as well. But whether the Earth is actually engulfed or not is immaterial, for the heat of the sun at this stage will be sufficient to vaporize our entire planet!

On one occasion the Buddha said:

“There will come a time when the mighty ocean will dry up, vanish, and be no more ... There will come a time when the mighty earth will be devoured by fire, perish, and be no more.”

The Structure of Matter

It was a common belief during the Buddha’s time that the world was made up of four primary elements — earth, water, fire and air. As this concept became incorporated into Buddhism, it appears to have acquired two levels of usage. In one sense, it retained pretty much its original meaning, as noted in the *Mahā Rāhulovāda Sutta*. Here, the Buddha describes all the solid parts of one’s body as being composed of “the element of earth” just like solid objects outside the body, the warm or hot aspects of one’s body as being “the fiery element” just like external heat. And likewise for water and air. The purpose of this passage was to illustrate that the physical body is compounded and has no eternal substance. Thus, in this case, the Buddha made use of a popular belief to illustrate a significant truth regarding the nature of man. If we give this passage a literal interpretation, then scientifically, it must be regarded as an outdated theory which in principle is sound but only crudely approximates modern concepts.

However, more commonly in the Dhamma, the terms earth, water, fire and air are rendered as solidity or extension, cohesion, heat, and motion respectively, and the term “primary qualities” is often used in place of the word “elements”. The *Visuddhimagga* further elaborates upon this by explaining that the four are interdependent and do not exist apart from one another. In the light of modern physics, one could easily rationalize such a doctrine by interpreting solidity as matter, cohesion as gravitational and electromagnetic force, heat as energy, and motion as motion. This in fact would include the basic features of physical existence. However, we must beware of the tendency to give familiar interpretations to unfamiliar material. Superficial similarities can deceive us into projecting our own understandings

into the beliefs of a completely different culture and era.

Evolution

The Brahmin caste was (and still is) the highest in India. On one occasion, a young Brahmin, named Vāsetṭha, joined the Buddhist order and thereby became a Monk of equal status with men from lower castes. For this, he was severely reprimanded by other Brahmins. They said that he had forsaken a divine and holy order; that the Brahmins were a special race born from the mouth of God. To repudiate these contentions, the Buddha explained to Vāsetṭha the true origins of humanity and said that all men had a common ancestry. This discourse is recorded in the *Aggañña Sutta*.

It cannot be said that the *Aggañña Sutta* describes evolution in the Darwinian sense. It makes no specific mention of biological adaptation, competition, and survival of the fittest. Yet, some striking similarities occur: The first beings on earth are described as sexless, vaguely-shaped creatures whose bodies lack solidity. In the beginning, they feed upon a savory earth which first appears as a scum on the ocean surface. This continues for a great length of time, during which their bodies increase in solidity, and diversity begins to appear in their shapes.

With the disappearance of the savory earth, growths similar to mushrooms appeared in the soil, and the earth’s inhabitants fed upon these. After these vanished, creeping plants became the source of nourishment, and finally rice. All this is said to have required great periods of time and eventually sexual characteristics developed.

Following this, the words “man” and “woman” and later “people” make their first appearance in the *sutta* with regards to the creatures under discussion. The word “beings”, however, continues to be used and occurs more often, though interchangeably, with the words denoting humanity.

In time, these beings take to making huts, and following this, they learn to store up rice instead of obtaining daily rice supplies. Eventually, the supply of this food, also, becomes scarce. At this point, they divide the land among themselves so

that each has his own property. But with the establishment of property, theft arises followed by punishment and the eventual choosing of a ruler to administer justice. Following this, a class of nobles appears, and finally division of labor occurs with the development of various trades.

Thus, in the Aggañña Sutta we find several features of modern evolutionary theory: The principle of gradual change over great lengths of time, the continuous development of diversified forms, and asexuality preceding sexual differentiation are all clearly stated. Furthermore, the development of plants in the sequence of scum, fungi, creepers, and rice is a reasonable approximation of botanical evolution. And the description of the building of huts followed in succession by the establishment of property, law, government and division of labor is supported by contemporary historical and anthropological data. No mention of animals per se is found in the *sutta*, and it is safe to assume that the beings under discussion were regarded as being both animals and men. For the word “beings” in Buddhist scriptures refers to all creatures, human or otherwise, and, as stated above, Buddhism recognizes no essential difference between man and animals. Consequently, the evolution described in the Aggañña Sutta would result in fossil impressions like those known to paleontologists. Finally, the Buddha’s description of the primordial world at the very beginning of evolution is compatible with some modern versions.

However, much is left unmentioned in the Aggañña Sutta, and it is not possible to evaluate fully the Buddha’s agreement with Darwinian theory on the basis of this text alone. The first mention of sexual differentiation in the text occurs after the appearance of rice, while, scientifically, sexual differentiation is known to have originated several hundred million years before rice or any other grain came into existence. But the wording of the *sutta* implies that sexual differentiation was already in existence before this time and that it was sexual dimorphism (that is, different physical appearances between the sexes) which manifested after the occurrence of rice; and even this is only suggested by the wording rather than being precisely stated. Furthermore, no mention is made

of wheat, millet, fruits, and other foods besides rice, but here we must keep in mind that the purpose of the *sutta* was to explain to Vāsetṭha his own racial and cultural origins and not to digress into historical data irrelevant to his immediate spiritual and psychological problems. Again, the *sutta* conveys the impression of a strictly herbivorous diet for all species throughout all evolution until mention is made of the establishment of hunters at the time of division of labor. This very much contradicts the established facts of paleontology, zoology, archaeology, and anthropology. But again, the *sutta* does not deny the existence of meat eating; it simply makes no mention of it. As an account of the origins of man and society, the Aggañña Sutta must therefore be described as greatly over-simplified. Yet, it was no doubt adequate for the purpose for which it was intended.

But despite all of the above, there is one major feature of the *sutta* which is completely at variance with orthodox science, so much so in fact as to discourage sympathetic consideration from scientifically-oriented readers. That is, the *sutta* does not recognize a gradual evolution of consciousness and other mental faculties. Rather, it describes the inhabitants of earth as being fully endowed with consciousness, intelligence, moral awareness, and verbal communication from the very beginning of evolution.

It is true that recent studies of baboon and chimpanzee societies have revealed them to be more sophisticated than previously suspected. It is also true that the ability to communicate information and the establishment of territorial rights exist in such creatures as fish, octopus, and insects; and furthermore, it is true that people who have worked intimately with animals of all types have often testified that their faculties of responding, feeling, conceptualizing, and communicating are greater than usually realized.

Thus, from the position of modern science, the Aggañña Sutta must be described as an interesting mixture of mythology, occultism, and scientific concepts.

A passage from a *sutta* in the *Saṃyutta Nikāya* tells of the antiquity of biological origins:

“Incalculable is the beginning, Bhikkhus, of

this faring on. The earliest point is not revealed of the running on, the faring on, of beings cloaked in ignorance, tied to craving. If a man, Bhikkhus, were to prune out the grasses, sticks, boughs and twigs in this India and, collecting them together, should make a pile laying them in a stack of squares saying for each: ‘This is my mother; this is my mother’s mother, etc.’ Brethren, the grasses, sticks, boughs, twigs in this India would be used up, ended before the mothers of that man’s mother were to come to an end.”

The Source of the Teachings

Despite the discrepancies between the scientific and Buddhist versions of cosmology, the structure of matter, and evolution one cannot help but ponder their marked similarities. Consequently the question arises, “How was such accuracy possible?” Since the Buddha and His followers had no access to scientific data nor conducted any scientific investigations, the explanation most acceptable to educated Westerners is that such teachings were a series of fortunate guesses. Acknowledging that the Buddha was perspicacious enough to realize that the universe was eternally changing and regulated by impersonal laws of cause and effect, and that He was imaginative enough to conceive of the vastness of time and space, then it would not be surprising that His explanations of cosmology, the origin of life, etc. would bear some similarities to reality. This is not an unreasonable conclusion and may well be valid.

On the other hand, orthodox Buddhists can raise two objections to this explanation: First, among all of the many other ancient philosophers and sages (Hindu, Hebrew, Greek, Egyptian, etc.) not one of them came nearly as close to so many different scientific teachings as did the Buddha. This strongly implies a factor beyond that of chance. Secondly, doctrines founded upon speculations and hearsay would be violations of the Buddha’s own ideals of empirical verification, teaching only what one knows to be true and of avoiding conclusions founded on specious reasoning. Throughout His life the Buddha was noted for fully adhering to all of the virtues He

advocated. The Buddhist explanation of the similarities between the Dhamma and science is that the Buddha, by virtue of realizing *Nibbāna* and developing His psychic faculties, acquired this information by extrasensory means similar to clairvoyance, precognition, and remembering the distant past.

If this explains the similarities, how can a Buddhist account for the discrepancies? There are five possible choices:

1. He can take the position of extreme orthodoxy, accepting the Dhamma as infallible and rejecting science. This response is not only naïve and philosophically dangerous; it is also extremely un-Buddhist; for it violates the Buddhist principles of non-prejudice, critical examination, and accepting only those teachings which are founded on knowledge.
2. He can claim that those passages of scripture which conflict with science are actually symbolic or figurative and not to be interpreted literally. This explanation may well apply in many instances, but if one arbitrarily classifies all embarrassing passages as symbolic, he makes the same mistake and invites the same dilemma that is often encountered by liberal Christians. That is, one progresses further and further into reinterpretation and rationalization to avoid facing unpleasant conclusions. If one decides that a certain clearly stated passage is symbolic, why could not the same be said for any other passage? The ultimate result is either total uncertainty or else accepting only those passages which are compatible with one’s personal opinions.
3. He can claim that the Buddha was completely correct in this teachings, but that there have been distortions and alterations in recording the Dhamma so that the existing scriptures are not entirely accurate. There is some merit to this contention, and we shall examine it in further detail later.
4. He can claim that, while the Buddha did have profound insights, these nevertheless had their limitations, and therefore he fell into error on occasion. Though this may appear blasphemous to some Buddhists, we have no certainty that the Buddha was immune to error. An unconditional assertion that the Buddha was infallible would

demand either prejudice or blind faith, both of which are un-Buddhist. More important perhaps is that such an assertion of infallibility would display either insecurity or a lack of mental development. The Dhamma claims that its essential tenets, the fruits of mental development, are capable of verification within the light of one's own experience. And one who has made reasonable progress along the Eightfold Path finds this to be so. Arguments and faith are unnecessary.

5. Finally, and perhaps most in accordance with Buddhist principles, he can suspend judgment on such matters. This is warranted on two considerations. First, epistemologically it can be demonstrated that the validity of any world view, whether Buddhist, scientific, or otherwise, can never be established with absolute certainty. Thus, opinions on such matters are always subject to some margin of doubt. Secondly, as the Buddha Himself stated, questions of the nature and origin of the world are irrelevant to the more important problems of happiness, everyday living, and spiritual development, and, therefore, they are not the primary concern of the Dhamma. In fact, He explicitly discouraged preoccupation with such matters.

Let us not forget, moreover, that the Buddha lived and taught within a particular cultural context. He framed His discourses in language that was comprehensible to His audiences. To do otherwise, would have added needless complexity to already difficult concepts.

The Nature of the Mind

Starting with the premise that there can be no such thing as experience without mind or consciousness, it follows that all human experience, both subjective and objective, is largely a psychological occurrence. Consequently, from the Buddhist viewpoint, any notion of existence apart from human experience has little significance. And conversely, any notion of a self, ego, or personality apart from experience is meaningless. For this reason, Buddhism is first and foremost a psychological system, and its primary concern is the development and improvement of

the human mind.

The Buddhist approach to the mind is predominantly empirical and experiential rather than conceptual or theoretical. For example, the Buddha spoke mainly of sensations, perceptions, love, hate, fear, etc. In contrast, Sigmund Freud more often spoke of id, ego, superego, and libido, and today, neurophysiologists talk about macromolecules, inhibitory impulses, and neuronal discharges. Here, we see three separate approaches to the same phenomenon. Each can be valid on its own level without necessarily contradicting the others. The major emphasis of the Dhamma is the manner in which one experiences and responds to sensations, perceptions, thoughts, and emotions. Its goal is teaching the individual to minimize unwholesome experiences (fear, anger, anxiety, depression, etc.) and to enhance experiences which are truly wholesome and meaningful.

In addition to His experiential emphasis, the Buddha also taught several concepts regarding the nature of the mind. And it is on this level that a comparison between Buddhist and Western psychology can best be made. Also, following the death of the Buddha, the conceptual approach to Buddhist psychology gained increasing popularity, resulting in the voluminous scriptures of the *Abhidhamma* and other texts.

These later Theravādin scriptures are consistent with the earlier canonical sources, but their authors occasionally enlarged upon the earlier scriptures, gave their own interpretations to ambiguous passages, and introduced new concepts. It is sometimes important for the reader to distinguish between the original sayings of the Buddha and His disciples on the one hand, and the later Pāli texts such as the *Abhidhamma*, *Visuddhimagga*, and the Commentaries on the other hand. For example, the Buddha made no mention in any of the canonical scriptures as to the physical seat of consciousness. Both Brahminical scriptures and popular tradition during the time of the Buddha taught that consciousness originated in the heart. The Buddha Himself neither denied nor affirmed this opinion. However, the writers of the Buddhist Commentaries adopted the heart theory, and it found its way into Buddhist tradition.

The most fundamental and frequently mentioned aspect of Buddhist psychology is the doctrine of *anattā* or “no soul.” This teaching is in

complete agreement with modern psychology and states that the psyche is an ever-changing aggregate of sensations, perceptions, thoughts, and emotions. There is no immortal soul, no true self, no immutable essence which lies at the basis of consciousness.

Another basic tenet of Buddhist psychology is that mind cannot exist independently of matter. The material and mental aspects of the human personality are considered to be interdependent; neither can come into existence nor survive without the other. The *Visuddhimagga* illustrates this point thus:

“For just as when two sheaves of reeds are propped one against the other, each one gives the other consolidating support, and when one falls the other falls, so too, in the five-constituent becoming, mentality-materiality occurs as an interdependent state, each of its components giving the other consolidating support, and when one falls owing to death, the other falls too..... Furthermore, mentality has no efficient power; it cannot occur by its own efficient power. It does not eat; it does not drink; it does not speak; it does not adopt postures. And materiality is without efficient power; it cannot occur by its own efficient power. For it has no desire to eat, it has no desire to drink, it has no desire to speak...”

Not only is consciousness dependent upon matter, Buddhism further teaches that it cannot exist apart from feelings, perceptions, and other states of mind. Conversely, these latter cannot exist without consciousness. In other words, to have consciousness, one must be conscious of something. The oft-spoken term “pure consciousness” has little meaning in a Buddhist context.

This last paragraph, however, warrants a note of explanation regarding the first two of the four immaterial absorptions (*arūpajjhāna*) as taught in Buddhism, that is, the sphere of unbounded space and the sphere of unbounded consciousness. As with contemplating love, equanimity, and the *kasīnas*, these two states denote specific meditation subjects and the states of mind produced by such meditations. That is, the thought of unbounded space, etc. is taken as the object of

meditation. Therefore, it is doubtful whether such terms should be interpreted as describing the state of mind of the meditator or as representing some metaphysical realm of existence. Furthermore, they should not be confused with *Nibbāna*, for they are conceptual formations and as such are subject to the same processes of cause and effect which regulate all other states of mind. In contemplating unbounded space, for example, one is conscious of the idea or sensation of unbounded space but is not actually experiencing a three-dimensional infinity.

Despite its assertion that mind is dependent upon matter, Buddhism does not go to the materialistic extreme of contemporary science and state that mind is completely and exclusively a mechanistic process, an epiphenomenon of matter. In addition to the physical requirements of consciousness, Buddhism teaches that there is a non-physical aspect of the psyche which is a prerequisite to life, embryonic development, and consciousness. An elucidation of this non-physical faculty appears in the *Abhidhamma* and is further explained in the Commentaries and the *Visuddhimagga*. It is termed *bhavaṅga-sota* in Pāli, which translates roughly as “subconscious life-stream.” The *bhavaṅga-sota* is said to contain the unconscious memory traces of all one’s past experience including impressions of past lives. When one’s present body dies, it reappears in a new body. Buddhists, however, carefully distinguish between this phenomena of rebirth and the Hindu concept of reincarnation by means of an immortal soul. First, they point out that, in one lifetime, one’s personality changes continually from day to day, month to month, and year to year. An adolescent is markedly different from the person he was as an infant, and an elderly person usually has interests, convictions, desires, and memories quite unlike those he held in his youth. Concomitantly, the *bhavaṅga-sota* is continually changing; it is not immortal and is devoid of any eternal essence. Secondly, the *bhavaṅga-sota* alone is devoid of thought and volition. It does not reflect on such considerations as: “I am such and such a person”, “I have such and such features”, “I recall such and such experiences in my past”, “Now I am thirsty”, “Tomorrow I shall do thus and so”, etc. Consequently it cannot be described as an ego or a true self.

The question, “What is the *bhavaṅga-sota*?” cannot be answered in the same way one might answer such questions as “What is a molecule?” or “What is an arthropod?” The question is much more like asking, “What is a photon (that is, the substance of light)?” One can say that light is composed of particles, or one can make the contrary statement that light is a wave. Upon analyzing the physical properties of light, both statements appear to be correct, and yet they are mutually exclusive. This paradox is unresolved and remains an enigma to rational understanding. Yet such a contradiction in no way invalidates the existence of light. This is another example of the difficulties encountered when man attempts to probe the fundamental mysteries of existence. A similar situation exists with the nature of consciousness and life after death.

On this matter, the Buddha is quoted as saying:

“To believe that the doer of the deed will be the same as the one who experiences its result (in the next life): this is the one extreme. To believe that the doer of the deed, and the one who experiences its result, are two different persons: this is the other extreme. Both these extremes the Tathāgata has avoided and taught the truth that lies in the middle of both...”

And from the *Visuddhimagga*:

“A mere phenomenon it is, a thing conditioned, that rises in the following existence. But not from previous life does it transmigrate there. And yet it cannot rise without a previous cause.”

An unfortunate aspect of the theory of rebirth is that the Western mentality almost invariably reacts to it with negative emotions, thus precluding any objective consideration. Certainly, the doctrine cannot be disproved, and yet one is quite justified in asking what reason there is for considering it. Surprising as it may seem, there is a fairly large body of data which supports this hypothesis. This was discussed in detail in one of our previous writings and is too extensive a matter to be repeated here. Suffice it to say that the evidence is suggestive but not conclusive. Dr. Ian Stevenson, Chairman of the Department of Neurology and

Psychiatry at the University of Virginia School of Medicine has made an extensive study of this matter and makes the following conclusions:

“I will say, therefore, that I think reincarnation the most plausible hypothesis for understanding the cases of this series. That is not to say that I think they prove reincarnation either singly or together. Indeed, I am quite sure they do not. But for each of the alternative hypotheses, I find objections or shortcomings which make them for me unsuitable explanations of all the cases, although they may apply to some.

“The evidence I have assembled and reviewed does not warrant any firm conclusion about reincarnation. But it does justify, I believe, a much more extensive and more sympathetic study of this hypothesis than it has hitherto received in the West. Further investigation of apparent memories of former incarnations may well establish reincarnation as the most probable explanation of these experiences.”

The Pleasure-Pain Principle

The most fundamental aspect of the psyche is neither intellect nor memory nor perception; rather it is feeling — feeling in the sense of pursuing what is pleasant and shunning pain (*dukkha*). Defining pleasure as the entire range of enjoyable experience including happiness, beauty, creativity, love, and friendship, then the pleasure-pain principle dominates all life and underlies all motivation. Human beings probably are capable of all the varieties of conscious experience available to the lower animals and, in addition, can experience feelings and pleasures, such as artistic appreciation and philosophical contemplations, which are denied to other species. In this sense, evolution can be regarded as a continual expansion of the dimensions of individual consciousness.

In Buddhism, it is craving, the principle of pleasure seeking, which forms the basis of life. Our continual thirst for new experiences and our desires for repeated sensory and emotional stimulation motivate virtually all voluntary

actions. Without such feelings, individual existence would be devoid of purpose, meaning, and value. The intellect and the organs of sense perception are merely the instruments through which the pleasure-seeking principle seeks to satisfy its never-ending desires. “Mind precedes all phenomena”, said the Buddha, “Mind dominates them and creates them.” When craving ceases, rebirth comes to an end.

The Authenticity of the Pāli Canon

To what extent does the Pāli Canon represent the original teachings of the Buddha? In all probability, His teachings were not put into writing until the first century BCE, or about 500 years after His death. However, scholars such as Prof. Rhys Davids and others have stated that the *suttas* and the *Vinaya* were probably completed (though not written) in their present form within a century after the Buddha’s demise and certainly were completed before the time of Emperor Asoka (270—230 BCE). Dr. Richard Gard believes that the Pāli and Sanskrit schools of Buddhism developed independently and that neither was copied from the other. If this is true, then most of the Theravādin doctrines are probably authentic, for there is a considerable amount of similarity between the Pāli and early Sanskrit scriptures. Perhaps the most significant fact to confirm their authenticity is the internal consistency of the Pāli scriptures themselves. Though these scriptures are several times larger than the Bible, contradictions are rare, and the essential teachings of the Four Noble Truths and the other paramount features of the Dhamma are the major theme throughout the entire Sutta Piṭaka.

According to Theravādin tradition, a council was held three months after the Buddha’s demise, at which time all of His discourses were recited. Groups of “reciting Monks” were then appointed, and it was the duty of each group to memorize thoroughly specific sections of the Dhamma. On occasions, groups which had memorized the same sections would confer with each other as a means of cross-checking and verification. Thus, the oral tradition of Buddhism is said to have been carefully preserved by men of advanced mental

discipline until such time as the Dhamma was committed to writing. Such was probably the case. Even today, groups of reciting Monks still carry on their selected portions of the Dhamma, and occasional Monks have committed the entire Tipiṭaka to memory! Also, the repetitious style in which the *suttas* are recorded probably was a device to facilitate memorizing. For it is quite unlikely that such repetitions represent the exact wording of unrehearsed dialogues, nor are they any convenience to reading or writing.

This tendency to modify the Buddha’s dialogues into repetitious and verbose stanzas gives credence to the assertions of those who claim that the Buddha was correct, and the discrepancies with science have resulted from errors in recording His sayings. For example, let us assume that the Buddha did describe the arrangement of solar systems, galaxies, and galactic clusters in the same way as now described by modern astronomy. One can easily see how a quest for rhetorical symmetry and repetition would lead to the descriptions of 1000 X 1000 X 1000 world systems, each like our own, as are now recorded in the *Āṅguttara Nikāya*.

Or again, let us suppose that the Buddha did teach evolution of exactly the same sort as taught by Darwin. His disciples were men astute in matters of ethical and spiritual concern and relatively ignorant of science as we know it today. Consequently, one would expect that the *Aggañña Sutta*, in which the Buddha describes evolution, would, from the scientific viewpoint, over-emphasize the moral and psychological aspects of evolution. And conversely, matters of major concern to modern evolutionary theory would appear relatively unimportant to the early recorders of the Dhamma and thus would become either omitted or inadvertently modified.

But the question we must now answer is: How reliable is a system of oral tradition when extended over a period of several generations? Perhaps the best means of answering this question is to examine a similar situation which existed until recently in the illiterate Polynesian cultures, especially the New Zealand Maori. The Maoris took great pains to memorize accurately tribal histories and genealogies, and consequently their history can be determined with reasonable accuracy for a period of 500 years or more. The consistency between different tribes and the

consistency with archaeological findings testify to their reliability. However, the system was not infallible. Tribal discrepancies occur, and the further back one goes into their historical past, the more difficult it becomes to distinguish between actual events and tribal mythology. Accounts of magic and miracles occur, and features of Maori history which were not subjects of popular interest were not committed to memory and soon were forgotten.

There is little doubt that some sections of the Pāli Canon are not authentic. For example, in *Saṃyutta Nikāya* I, 50 (II, 1, 10), we read of an occasion when the demon Rahu attempted to swallow the sun. The sun called to the Buddha for help. The Buddha admonished Rahu, and the sun was set free. This passage can be traced to an ancient Indian myth, which is believed to have originated from the phenomena of solar eclipse.

Another example is the *Lakkhaṇa Sutta*. It is unlike any other and in a few passages contradicts other *suttas*. Rhys Davids traces its origin to an ancient pre-Buddhist myth, which for some unexplained reason was incorporated into the Canon. In this discourse, the Buddha allegedly discusses the 32 marks of the superman. These are 32 anatomical features, including a long tongue, 40 teeth and the ability to touch one's knees while standing erect. One who is blessed with all 32 marks will either be a great monarch or a great Buddha, and each mark conveys certain blessings. Though Buddhahood requires celibacy and non-violence, this *sutta* describes as follows the blessings of a Buddha endowed with the mark of a male organ concealed in a long foreskin:

“Abundant children will be his, for thousands of children will he have, heroes, champions, vigorous of frame, crushers of the hosts of the enemy.”

The dialogue gives no indication that this or any of the other passages are to be taken symbolically.

The Buddha's first discourse, termed the *Dhammacakkappavattana Sutta*, is consistent with the rest of the *Tiṭṭaka* and also with the alleged historical events in the Buddha's life. Furthermore, its dialogue appears genuine and the message quite reasonable. All seems well until the very end when we read:

“When the Wheel of Truth had thus been set rolling by the Blessed One, the earth-gods raised the cry: ‘At Benares, in the Deer Park at Isipatana, the matchless Wheel of Truth has been set rolling by the Blessed One, not to be stopped by Monk or divine or god or death-angel or high divinity or anyone in the world.’

“On hearing the earth gods cry, all the gods in turn in the six paradises took up the cry until it reached the Retinue of High Divinity in the sphere of pure form. And so indeed in that hour, at that moment, the cry soared up to the World of High Divinity, and this ten-thousand-fold world element shook and rocked and quaked, and a great measureless radiance surpassing the very nature of the gods was displayed in the world.”

In the *Parābhava Sutta*, the Buddha gives a discourse on ethics, and a different ethical discourse appears in the *Mahā-Maṅgala Sutta*. The contents of both appear realistic and acceptable. Nothing in either is objectionable to the Western mentality except that both begin with the same opening paragraph, which reads:

“Now when the night was far spent, a certain deity whose surpassing splendor illuminated the entire Jeta Grove, came to the presence of the Exalted One and, drawing near, respectfully saluted him and stood at one side.”

While one cannot prove that gods and similar beings do not exist, viewed from the position of modern science, their existence appears extremely unlikely, and it seems even more improbable that they would appear and behave in the manner described. The most likely explanation is that, in the course of time, such opening or concluding passages were added to authentic dialogues. This explanation, however, cannot apply to the *Sakkapañha Sutta*, for the entire *sutta*, though consistent with Buddhist doctrine and style of writing, is a dialogue between the Buddha and Sakka, the king of the gods.

As improbable as the existence of gods may seem, it is almost equally improbable to assume that the Buddha was a historical myth. Most likely most passages are authentic while some are not.

But we cannot state with absolute certainty which passages belong to which category. How should the modern Buddhist regard this problem? Probably the least desirable course of action would be to try and revise the Dhamma in the light of contemporary opinions. Right or wrong, honesty demands that it stand as it is. Man's conception of the universe has changed markedly in the last 150 years, so it is not impossible that in decades or centuries to come some of the presently "unacceptable" features of Buddhism may be surprisingly modern. Over 2,000 years ago, many Buddhists were dissatisfied with the pristine teachings and sought to enlarge and modify them. The result was Mahāyāna Buddhism, which today, in most schools, finds itself at variance with the beliefs and ideals of Western science.

But again, we must emphasize two essential features of the Dhamma. First, the Buddha said to examine critically His own teachings, like all other teachings, and to accept only that which is reasonable. Secondly, the most important and most strongly-emphasized aspects of the Buddha's doctrine are its ethical philosophy and the techniques of psychological development. The value of both of these is empirically demonstrable and independent of any world view.

Conflicts between Buddhism and Science

In this section, I have listed three areas of disagreement between Buddhism and science. Only with the last of these three does scientific evidence refute the Buddhist claim. The first two could readily be classified under "Buddhist Concepts not Recognized by Science." However, unlike *kamma* and *Nibbāna*, these two are of such a nature as to be scientifically distasteful. Thus, it is a factor of attitude rather than logic which results in this classification.

The Existence of Devas

In the preceding section, it was noted that some of the *suttas* tell of the appearance of gods (*devas*) as actual historical events in the life of the Buddha. In addition to this, the Buddha Himself made frequent reference to such beings. This occurs so

often in the *suttas* that there seems to be little doubt that He did indeed affirm their existence, possibly because such a belief was already deeply-rooted in Indian culture.

In early Buddhism, however, these beings were not gods like those of Greek and Roman mythology. The Buddha explicitly said that they were not to be worshiped; they were not necessarily superior to humans; and they were not immortal. They were subject to the same laws of cause and effect which apply to earthly existence. According to Buddhism, there exist thirty-one planes or dimensions of existence including our own. An intelligent and gifted ruler on one of these planes is called Brahmā (the chief god of the pre-Buddhist Brahmin tradition), but, as described by the Buddha, he is not a creator, nor is he all-powerful. Rather than trying to abolish the existing Brahmin culture, the Buddha dethroned them.

Authors of science fiction have written about "other dimensions" in which intelligent beings inhabit worlds spatially adjacent to our own but are invisible to us by virtue of being on different planes of existence. This is closer to the Buddhist view than the traditional concept of gods, and perhaps it would be preferable to use the Pāli word *devas* or a different English term, such as "celestial beings", in Buddhist contexts to avoid the usual connotations of the word "gods".

Supernormal Powers

Carefully-controlled scientific experiments and investigations have indicated that telepathy, precognition, and clairvoyance probably are valid phenomena. A few investigators also claim to have demonstrated the existence of psychokinesis, the ability of mind to influence the behavior of matter; however, the validity of psychokinesis remains open to question. Either as a result of these investigations or as a result of personal experiences, most Westerners either believe in such phenomena or at least are willing to give the matter sympathetic consideration. Likewise, Buddhism acknowledges the validity of these occurrences, though it offers no explanation for them.

The question under present consideration, however, is to what extent do such phenomena occur? Recognizing that the Buddha had made

great strides in psychological development, it is not too difficult to accept those passages where, through extrasensory means, He is able to know the thoughts of a disciple or know of a discussion that occurred well beyond the normal range of hearing; such passages are not uncommon in the *suttas*. One may even be able to accept those passages in the *Pātika Sutta* where the Buddha on separate occasions correctly foretells the death of two Hindu ascetics. But who would believe that portion of the *Pātika Sutta* where the Buddha in front of several thousand people levitates his body to a height of seven palm trees and then magically creates a flame of equal height? Accounts of levitation appear on several occasions in the *Tipiṭaka*. Even more improbable are the occasional passages which list among the possible psychic powers the ability to multiply one's body many times over, to walk on water as if it were ground and to go through solid matter as if it were water.

The extent to which paranormal faculties exist and the extent to which the Buddha had such powers are two questions which may never be answered. But on the basis of the *Tipiṭaka* alone, there is reason to suspect that the *Pātika Sutta* and similar accounts of supernormal powers are not authentic. First, it should be noted that the Buddha made no claim to divinity; He was mortal like all other finite creatures, and on His deathbed spoke, "Decay is inherent in all component things." In the *Saṅgīti Sutta*, He asked *Sāriputta* to take over the task of lecturing for the night because, "My back is aching; I will stretch it." And in the *Nandaka Sutta*, He addressed a Monk:

"This discourse, which you preached to the Monks, was a long one. My back ached as I stood outside the doorway, waiting for the discourse to end."

It would seem that a man able to multiply His body several-fold, to rise into the air and to float through solid matter could easily spare Himself the discomforts of a backache.

In the *Susīmaparibbājaka Sutta*, a novice approached several of the advanced Monks who had already achieved *Nibbāna* and asked whether they enjoyed various supernormal powers:

"Do you become many from being one? ... Do you become visible or invisible at will?... Do you float cross-legged through the air just as a winged bird? ... Are you able to transport your body even up to the plane of high heaven?... Do you know the minds of other beings, of other persons, penetrating them with your own mind? ... Do you remember various former births ?..."

To each of these questions and many similar ones, the Monks replied, "No". When the bewildered novice asked how he should take this, the Monks said:

"O *Susīma*, we gained freedom through insight wisdom."

On another occasion, the Buddha was approached as follows:

"The Exalted One was once staying in the mango grove at *Nālandā*. *Kevaḍḍha*, a young householder, came to the Exalted One, bowed in homage to Him, took a seat on one side and said: 'This *Nālandā* of ours, Sir, is influential and prosperous, crowded with people devoted to the Exalted One. It would be good if the Exalted One were to order some Monk to perform a miracle by supernormal power. Then, this *Nālandā* of ours would become even more devoted to the Exalted One.'

"The Exalted One replied to him: 'But, *Kevaḍḍha*, I do not give instructions of this sort to the Monks: 'Come now, Monks, perform a miracle by supernormal power for the white-clad lay-folk!'"

Kevaḍḍha then repeated his request and received the same reply. He repeated a third time, and the Buddha said:

"There are three sorts of miracles, *Kevaḍḍha*, which I, having understood and realized, have made known to others. What are the three? The magical miracle (that is, the power of mind over matter), the miracle of thought-reading, and the miracle of education."

The Buddha then gives a detailed description

of the first two and explains that such works will not change the minds of those who do not wish to believe. Regarding such works, He concludes:

“Well, Kevaḍḍha, it is because I see danger in the practice of miracles that I loathe and abhor and repudiate them. But what, Kevaḍḍha, is the miracle of education?”

“Suppose, Kevaḍḍha, that a Monk teaches: ‘Reason in this way, do not reason in that way. Consider thus, and not thus. Get rid of this disposition, train yourself and remain in that.’...”

Continuing in this manner, the Buddha shows how, through proper training, one can eventually achieve enlightenment. He then concludes:

“This, Kevaḍḍha, is what is called ‘the miracle of education’.”

While the Buddha acknowledged the existence of paranormal phenomena, He did not regard them as having positive value and discouraged their use. He went so far as to call them “curses”. Among the rules of Vinaya discipline, He mentioned:

“You are not, O Monks, to display before the laity the wonders of *Iddhi*, surpassing the power of ordinary men.”

And in the *Aṭṭhaka Vagga* (of the *Sutta Nipāta*), He said:

“Let him not sleep too much, but remain mindful; let him abstain from sloth, deceit, frivolity, sport, lechery, adornment. Let him not work the spells of the *Atharva Veda*, nor interpret dreams and omens, nor practice astrology. Let not my dear disciple make predictions from the cries of birds.”

The *Brahmajāla Sutta* of the *Dīgha Nikāya* gives an even more detailed list of the numerous arts of magic, fortunetelling, and palmistry which are to be shunned by a Buddhist Monk. Consequently, the authenticity of those passages which tell of the Buddha working miracles in front of the laity is open to doubt. The same might also be said for those which stress supernatural

phenomena beyond the point of mentioning their existence and practical limitations.

Pseudo-history

In the *Cakkavatti-Sihanāda Sutta*, the Buddha tells of an era in the distant past when the known world was governed by a dynasty of righteous kings. Each reigned for a period of many thousands of years, and because they lived and ruled in harmony with the Dhamma, the world enjoyed peace, prosperity, virtue, and happiness. In time, however, there came a monarch who, with good intentions, sought to rule by his own ideas and, in doing so, neglected certain needs of the people. Consequently, poverty arose and over several generations was gradually followed, in order, by theft, violence, murder, lying, evil-speaking adultery, abusive and idle talk, covetousness and ill-will, false opinions, incest, wanton greed, perverted lust, and a lack of filial and religious piety. With the appearance of each of these vices, the life-span and comeliness of men and women steadily decreased. The Buddha then goes on to say that this process will continue into the future until such time as men become totally devoid of morality and the human life-span has shrunk to ten years:

Following this will come a moral reformation, so that in a period of twelve generations men again live life-spans of 30,000 years and kings again rule according to the Dhamma. Once more, peace, prosperity, and happiness will flourish. Similar stories appear in other sections of the Pāli Canon.

This *sutta* can be viewed as a rough approximation of the decline and subsequent restoration of Indian culture, where the present life-span averages about 30 years, and poverty and crime are rampant. At one point in the *sutta*, the Buddha refers to “this India” (*Jambudīpa*) in a context which makes it identical to the culture under discussion. However, even this interpretation is far from historically accurate, and the *sutta* makes no statement of symbolic intentions. Any literal interpretation must be viewed as scientifically unacceptable. Perhaps we should take the suggestion of Prof. Rhys Davids and regard this story and the others like it as being

on the same level as the *Jātaka* stories; that is, as fairy tales intended to teach a moral rather than historical fact.

Conclusion

In this essay, a comparison was made between contemporary science and the early teachings of Theravādin Buddhism. A remarkable degree of similarity and compatibility was noted; a similarity which is almost astonishing when we consider the antiquity and origins of Buddhism. Yet despite such compatibility, some aspects of the Dhamma are scientifically unacceptable and probably untrue.

How should the modern Buddhist regard this situation? Perhaps the best answer can be found by paraphrasing a passage from the New Testament: “Give unto science those things which belong to science, and give unto the Dhamma those which belong to the Dhamma.” It is the proclaimed province of science to investigate and analyze the physical universe, to discover its laws, and to explain its origins. And in this realm, no other institution has done so well. The essential and proclaimed province of Buddhism is the realm of experience and feelings, and to date it far surpasses any Western institution in this regard. It is true that there are areas in which the two overlap, and in these areas, each can contribute to the other.

The Western emphasis upon the scientific method and its preoccupation with objective reality have sometimes borne unfortunate consequences. Among university students majoring in science and philosophy and also among their professors, one not infrequently finds pathetic examples of brilliant and learned men who have more knowledge of the world than of themselves. They are often emotionally retarded and socially insecure, and frequently deceive themselves into believing that their intellects and extensive knowledge are the highest of virtues. Yet somehow, happiness eludes them, and they are forever defending their personal inadequacies behind an aegis of titles such as “Scholar”, “Doctor”, and “Professor”.

Perhaps even more pathetic and even more obvious are the frequent examples of intelligent

but emotionally maladjusted persons who become students (and even authorities) of psychology and psychiatry. Despite their extensive knowledge of psychodynamics and psychotherapy, their own personality growth remains minimal. Clearly, science alone will not answer life’s problems.

On the other hand, the logic of science has strongly refuted the cherished convictions of theistic religions. And in so doing, it has further heightened the emotional turmoil of man. The defensive and hostile attitude of many Christians towards science is but one example. Such emotional reactions do not always reflect the Christian desire for a loving father image who will protect, provide, and give everlasting life. Quite often, they represent another example of the Western emphasis upon external reality. In the minds of many Christians, Jews, and Moslems, the God concept is the embodiment of their most noble and cherished ideals; ideals of goodness, virtue, and love. To say that God does not exist is thus to say that these ideals have no reality; there is no purpose in living. But such is not the case. Goodness, virtue, and love are empirically demonstrable, including among atheists and other nonbelievers; we can experience them any day of our lives. In effect, monotheists assume that, to find happiness and meaning in life, God must exist as an external reality; he must be “somewhere out there”, and, further, we must believe that he is out there. Yet while nonbelievers do not experience God, both believers and nonbelievers alike have experienced happiness, goodness, and love.

Buddhism, on the other hand, stresses the reality and importance of experience. It is primarily a psychological system with special emphasis given to an experiential approach to the mind. Most important, within this framework, it is a system, a technique, a way of life designed to enhance emotional maturity and well-being. In this realm, it is unrivalled by any existing institution. And it is here that it holds its greatest potential for making a great and lasting contribution to world culture. ■

Adapted from *Buddhism, Science, and Atheism* by Douglas M. Burns, MD. First published in 1965 by the World Fellowship of Buddhists. Buddhist Publication Society web edition 2006. The original essay contains additional material not included here.